

TEXAS SOUTHERN UNIVERSITY
COLLEGE OF SCIENCE AND TECHNOLOGY

Name: Daniel Vrinceanu
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EDUCATION

1992 B.S. Physics University of Bucharest, Rumania
2000 Ph.D. Theoretical Physics Georgia Institute of Technology

COURSES TAUGHT

PHYS 101 Principles of Physical Science
PHYS 237 College Physics I
PHYS 238 College Physics II
PHYS 251 University Physics II
PHYS 271 Computational Physics I
PHYS 336 Thermodynamics and Statistical Physics
PHYS 353 Quantum Mechanics I

RESEARCH INTERESTS

Theoretical studies of: Matter at extreme conditions – strongly correlated system: novel computational algorithms for ultracold ionized gases, ultrafast pulses, quantum computing and BEC. Formation, capture and detection of anti-hydrogen atoms in a Penning trap. I interaction and collisions in ultracold Rydberg gases and frozen plasmas, electron impact ionization of Rydberg atoms, interaction between Rydberg atoms, radiative processes involving Rydberg

atoms, three-body recombination. Collisional and radiative properties of metastable helium atoms, collisional broadening and shift of atomic and ionic lines.

PUBLICATIONS (five most recent peer-reviewed)

1. Long-range interaction between ground and excited state hydrogen atoms by D. Vrinceanu and A. Dalgarno, *J. Phys. B* 41, 215202 (2008)
2. The King model for electrons in a finite-size ultracold plasma by D. Vrinceanu, G. S. Balaraman and L. A. Collins, *J. Phys. A* 41, 425501 (2008)
3. Rydberg atom formation in ultracold plasmas: Small energy transfer with large consequences by T. Pohl, D. Vrinceanu, and H. R. Sadeghpour, *Phys. Rev. Lett.* 100, 223201 (2008)
4. Long-range interactions for two He (2P) atoms: accurate results for He(2₁P)–He(2₁P), He(2₁P)– He(2₃P), and He(2₃P)–He(2₃P) for like isotopes by J.-Y. Zhang, Z.-C. Yan, D. Vrinceanu, J. F. Babb, and H. R. Sadeghpour, *Phys. Rev. A* 76, 012723 (2007)
5. A theoretical survey of formation of antihydrogen atoms in a Penning trap by D. Vrinceanu, in “Atomic processes in Plasmas: 15th APS Topical Conference”, edited by J. D. Gillaspay, J. J. Curry and W. L. Wiese (2007)